

USSR

K  
1975.  
БОЛДИН, В. Г., ИВАНОВА, Е. В., КИЧЕНКО, С. А. ИМПЕРИАЛЬСКАЯ УНИВЕРСИТЕТСКАЯ  
БОГАМОВ, О. П., БАКУНОВИЧ, А. А. ИЗДАНИЕ РОССИЙСКОГО УНИВЕРСИТЕТА

"Effect of straightening on the change in the mechanical properties of cold-  
rolled sheet steel."

Moscow, Sib', No 10, Oct 74, pp 74-75.

Translation: The straightening of strips in the form of U-shaped bending  
units leads to a change in the mechanical properties of cold-rolled sheet  
steel. The tensile strength increases and the relative elongation, the ductility,  
of hole drawing, the reduction of area, the yield point, and the fatigue load  
increase. ... (and) ... straightening brings about a noticeable increase  
efficiency of straightening according to mechanical properties.

1/1

## Molecular Physics

USSR

ANTIPIN, A. A., KURKIN, I. N., SHLENKIN, V. I., Kazan' State University imeni V. I. Ul'yana-Lenin

"Spin-Lattice Relaxation of Sm<sup>3+</sup> and Ho<sup>3+</sup> Ions in Single Crystals of Scheelite Structure"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sept, '71, pp 2641-2645

**Abstract:** The authors study of the variation with temperature of the spin-lattice relaxation time for Sm<sup>3+</sup> ions in CaWO<sub>4</sub> single crystals and for Ho<sup>3+</sup> ions in single crystals of CaWO<sub>4</sub> and PbMoO<sub>4</sub>. Measurement of relaxation times in the CaWO<sub>4</sub>:Sm<sup>3+</sup> system were made on a frequency of ~ 8.8 GHz by the method of saturation of the spin echo signal, on a frequency of ~ 2.9 GHz by the method of pulse saturation, and from broadening of the EPR signal. The relaxation times for Ho<sup>3+</sup> in calcium tungstate and lead molybdate were found from the variation with temperature of the width of the EPR lines on a frequency of approximately 36.0 GHz.

It was found that direct, Raman, and Obrakhovskiy processes make an appreciable contribution to the probability of spin-lattice relaxation for CaWO<sub>4</sub>:Sm<sup>3+</sup> at temperatures of 1.5-10°K. It was found from the probability of the Obrakhovskiy process that the first excited Stark level of the term  $^6H_{5/2}$  is located above the ground state by a distance of  $61.5 \text{ cm}^{-1}$ ,

USSR

ANTIPIN, A. A. et al., Fizika Tverdogo Tela, Vol 11, No 9, pp 2641-2645  
which agrees satisfactorily with the calculation of the Stark structure  
for this term. Theoretical valuations are also given for the relaxation  
times for the calcium tungstate-samarium ion system using the Jeffries  
method.

Spin-lattice interaction of  $\text{Ho}^{3+}$  ions in calcium tungstate and lead  
molybdate crystals in the 10-20°K temperature range is determined by the  
Obrazkovskiy relaxation mechanism.

The authors thank A. M. Morozov for furnishing the single crystals for  
the research, R. Yu. Abdulsabirov for assistance in carrying out the ex-  
periment, and E. Kh. Ivoilova and O. I. Mar'yakhina for assistance in  
making the calculations. Two figures, bibliography of twenty-two titles.

2/2

\* 71 -

1/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--THEORY OF THE NUCLEAR MAGNETIC RESONANCE SUSCEPTIBILITY OF  
MULTIDOMAIN FERROMAGNETICS. II. LOCAL INTENSIFICATION FACTOR AND  
AUTHOR--(03)-TUROV, YE.A., TANKEYEV, A.P., KURKIN, M.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29, (4), 747-756

DATE PUBLISHED----APR 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, FERROMAGNETIC MATERIAL, ABSORPTION  
COEFFICIENT, MAGNETIC SUSCEPTIBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1802

STEP NO--UR/012670/029/004/0747/0756

CIRC ACCESSION NO--APO129170

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--APOL29170

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORY OF NUCLEAR MAGNETIC RESONANCE (NMR) IN MULTIDOMAIN FERROMAGNETICS IS PRESENTED WITH SPECIAL REF. TO THE QUESTION OF SUSCEPTIBILITY AND METHODS OF CALCULATING THE LOCAL AND INTEGRAL PARAMETERS ASSOCIATED WITH THIS PROPERTY. THE THEORY IS LARGEMLY BASED ON EXPRESSIONS DERIVED IN THE AUTHORS' EARLIER PAPER (LOC. CIT.). THE SHAPE OF THE DISPERSION CURVES IS ANALYZED AND THE BEHAVIOR OF THE ABSORPTION COEFF. CLOSE TO THE NMR FREQUENCY IS INDICATED. THE POSSIBILITY OF OBSERVING THE CORRESPONDING EFFECTS EXPERIMENTALLY IS CONSIDERED.

UNCLASSIFIED

USSR

UDC 620.172.251.1

KURKIN, S. A., REMOROV, V. YE. and GUBANOV, YU. N.

"A Device for Testing Metal Foil and Welded Junctions under Static and Small-Cycle Biaxial Stretch under Low-Temperature Conditions"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Mashinostroyeniye, No 4, 1973,  
pp 171-175

Abstract: A device for testing the buckling of flat or rolled metal foils, welded junctions, cylindrical vessels and pipes under conditions of biaxial stretch at low temperatures is described, which has a specified position for the power source in a special chamber, both cooled by the introduction of liquid air from a gas-cooling engine. Buckling is produced by static or small-cycle loading, by introducing a liquid under the sample. At the present time tests have been carried out to -60°C, using diesel fuel mark DA as the working liquid. However the cooling curve of the instrument indicates the possibility of lower temperature measurement.

1/1

USSR

UDC 669.01

SIDORIN, I. I., Doctor of Technical Sciences, Professor; MOLYANOVA, A. A., Assistant; KURKIN, S. A., Doctor of Technical Sciences, Professor; KOSTOGONOV, V. G., Engineer, Moscow Higher Technical School imeni N. E. Baumann, Central Scientific Research Institute of Ferrous Metallurgy

"On the Effect of Plastic Deformation Under Biaxial Stretching at Liquid Nitrogen Temperatures on the Structure and Properties of 1Kh18N10T Steel"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

**Abstract:** The plastic deformation was determined and the structure and mechanical properties of 1Kh18N10T steel were studied. The steel was intended for the fabrication of vessels and various welded reservoirs operating under conditions of biaxial stretching at low temperatures. It is noted that austenite stainless steels are very important structural materials in cryogenic technology and a basic feature of their behavior under deep cooling is a rise in strength while maintaining sufficient plasticity. Experimental data was available on the mechanical properties of many steels of the austenite class under axial

1/2

USSR

SIDORIN, I. I., et al, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

stretching at low temperatures, but there has not been data for biaxial stretching and therefore the effect of plastic deformation under conditions of biaxial stretching on the structure and properties of samples of 1Kh18N10T steel were studied at liquid nitrogen temperatures. Comparison of the results obtained under biaxial stretching conditions with published data for uniaxial stretching shows that the martensite is considerably greater than under uniaxial stretching conducted at a temperature of -196°C. This is in good agreement with the results of strength tests showing a considerably greater effect of strengthening under biaxial stretching than under axial stretching. At a temperature of 20°C both biaxial and uniaxial stretching did not lead to a considerable formation of martensite. It is concluded that the transformation of austenite into martensite under biaxial stretching of 1Kh18N10T steel at liquid nitrogen temperatures occurs considerably more intensively than under uniaxial stretching. This is attributed to the greater intensity of strengthening of the steel under biaxial stretching under low temperature conditions than under uniaxial stretching.

2/2

**Forming**

USSR

UDC 621.791.053.6:669.715:621.771

KURKIN, S. A., Doctor of Technical Sciences, KLOCHKOV, N. A. and NIKOLAYEV,  
A. I., Engineers

"Rolling With Preliminary Heating of Butt Seams of AMg6M Alloy"

Moscow, Svarochnoye Proizvodstvo, No 11, Nov 70, pp 24-25

**Abstract:** Welded joints of AMg6M alloy are unsuitable for deep drawing or stamping due to tearing of the welded seam, resulting from the presence of a dendritic structure and large separations of the  $\beta$ -phase in the fusion zone. This problem can be eliminated by rolling seams in a roller with local heating, thus improving the properties of the metal in and around the welded seam. The increased homogeneity of the mechanical properties produced by rolling increases the reliability of these structures under biaxial extension conditions and allows parts of complex shape to be stamped from welded blanks.

1/1

USSR

UDC 533.013.12

KURKIN, V. I., Docent, Candidate of Technical Sciences, and Professor LEBEDEV,  
I. V., Doctor of Technical Sciences /decensed/, Moscow Institute of Electronic  
Machine Building

"A Comparative Evaluation of the Aerodynamic Resistance of a Filament and a  
Strip During Their Movement in a Viscous Medium"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Mashinostroeniya, No 10,  
1973, pp 24-26

Abstract: A calculation procedure is presented, which permits a comparative  
evaluation to be made of the forces or aerodynamic resistance of a round  
filament and a flat strip during their movement in a viscous (aerial) medium.  
By means of this method, a more correct approach can be made to selection of  
type and design of the flexible element in mechanical systems with moving  
filaments and strips. 2 references.

1/1

USSR

UDC: 531.391

SVETLITSKIY, V. A., MIKOSHNIK, R. A., KURKIN, V. I., Moscow Higher Technical Academy imeni Bauman

"Determining the Forms of Steady-State Motion of a Filament in Media of Different Viscosities"

Kiev, Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 100-104

**Abstract:** The authors study forms of steady-state motion of a flexible inextensible closed filament with regard to forces of gravity and longitudinal drag of the medium. A closed solution is found in cartesian coordinates. An expression is found for determining tension in the filament. The boundary-value problem is solved in the case of motion of the filament in two media with different longitudinal drag. Both possible forms of steady-state motion are plotted for a numerical example in the case where the filament ascends from underwater into the air, and these forms are compared with the forms of motion of the filament in air alone or in water alone. Two illustrations, bibliography of four titles.

1/1

- 15 -

USSR

UDC 621.313.12:538.4  
*(5)*

APUKHTINA, YE. G., BORDACHEVA, V. V., VAL'DBERG, A. YU., VAKHROV, YE. A., KIRKIN,  
V. P., MOSTINSKIY, I. L., NEKHOROSHEV, R. S., SOKOKIN, G. N., FEDOROVA, ZH. S.

"Study of Various Methods of Trapping an Ionizing Additive in the U-02 Experimental Magnetohydrodynamic Generator"

V sb. Magnitogidrodinam. metod polucheniya elektroenergii (Magnetohydrodynamic Method of Obtaining Electric Power--collection of works), vyp. 3, Moscow, Energiya, 1972, pp 202-219 (from RZh-Aviatsionnyye i raketnyy dvigateli, otdel'-nyy vypusk, No 11, Nov 72, Abstract No 11.34.137)

Translation: The requirements on additive injection systems are formulated. Methods of trapping an ionizing additive and the structural execution are described. The operating experience using additive injection systems in experimental magnetohydrodynamic generators is described, and results are presented from studies of the efficiency of trapping them with submicron  $K_2CO_3$  dust from a flow of combustion products are presented. A study was made of the advantages and disadvantages of each of the systems. There are 7 illustrations and a 13-entry bibliography.

1/1

USSR

KURGANOV, R. A. and LUKIN, I. V.

UDC 621.371:538.569.4

"Anomalous Absorption in Meteor Radio Ranges"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 502-506 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A349)

Translation: A method is given for prognosis of anomalous meteor radio propagation of several types based on the use of mathematical criteria of detection and a developed method for measuring the degree of anomalous absorption. One illustration, bibliography of seven. A. L.

1/1

USSR APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002201630010-6

YUKHTIN, N. N., ANDREYEVA, YE. I., MEL'NIKOV, N. N., SKALYUKOVA, A. V., PRONCHENKO, T. S., SHKURATOVA, G. N., YURKOVA, A. G., KURGANOV, Z. B., NOVIKOVA, R. G., and OBUKHOVA, V. I.

"Phenylmercury and Hexylmercury"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow 1970, pp 145-150 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N426)

Translation: Seed disinfectant dusts -- hexylmercury (15 EtHgCl, 18-22% hexachlorobenzene, and up to 20%  $\gamma$ -hexachlorocyclohexane) and phenylmercury hexachlorobenzene, and up to 20%  $\gamma$ -hexachlorocyclohexane) -- are officially authorized in the (15 EtHgCl and 18-22% hexachlorobenzene) -- are officially authorized in the Soviet Union for use against the same plant diseases as those controlled by granosan. About half the EtHgCl expended when granosan is used is expended when phenylmercury and hexylmercury are used. Phenylmercury can be used against fusarium wilt and helminthosporiosis. The new disinfectants show promise as agents for controlling dwarf wheat infections and wheat kernel smut. The most promising signal dyes for the disinfected grain are rhodamine C, methylene blue, acid blue-black and direct red 2G.

1/1

USSR

KURGANOV, R.A., LOKIN, I.V.

UDC 621.396.24:535.45

"Experimental Investigation Of Meteoric Propagation Of Radio Waves In Polar Latitudes"

V sb. Meteorn. respostr. radiovoln (Meteoric Propagation Of Radio Waves--Collection Of Works), Issue 8, Kazan', Kazan University, 1971, pp 9-17 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 94194)

Translation: Data are analyzed from measurements of the parameters of meteoric propagation which, starting in 1967, have been regularly conducted at an experimental transpolar route (zapolyarnyy trase), with coverage of the maximum and minimum magnetic-ionosphere disturbances. The route is oriented with a parallel. Some data on the apparatus are presented. Curves are constructed for the propagation of meteoric reflections by types, the average duration of the meteoric reflections, the daily variation of the number of meteoric reflections, and the fill factor. 6 ill. 5 ref.

1/1

USSR

KURGANOV, R.A., LUKIN, I.V.

WDC 621.396.24:525.55

"Anomaly Of Meteoric Propagation Of Radio Waves In Polar Latitudes"

V sb. Meteorn. rasprostr. radiovoln (Meteoric Propagation Of Radio Waves--Collection Of Works), Issue 8, Kazan', Kazan University, 1971, pp 55-58 (from Izdat.Radiotekhnika nika, No 9, Sept 1971, Abstract No 9A191)

Translation: With the object of constructing a theory for forecasting meteoric propagation of radio waves (MRW) in polar latitudes, measurements were made of the parameters of MRW during periods of maxima and minimum magnetic-ionospheric disturbances at an experimental route (trasse). The temporal variation of the ionosphere parameters is compared with the temporal change of the number of recorded meteorites, which makes it possible to recognize anomalies connected with absorption in the zone of auroras. The necessity is established for a forecast of anomalies of the functional relation between change of the characteristics of the ionosphere and magnetosphere and the changes of the intensity of the Polission meteor shower registered at an anomalous and preanomalous hour. 2 ill. 8 ref. N.G.

1/1

- 48 -

USSR

UDC: 621.396.2:523.532

KURGANOV, R. A., KAZAKOVA, T. V.

"On the Necessity of Accounting for the Distribution of Velocities and Density of the Incident Flux of Meteoric Particles in Predicting Meteoric Propagation of Radio Waves"

V sb. Meteor. rassrostr. radiovoln (Meteoric Propagation of Radio Waves - collection of works), vyn. 7, Kazan', Kazan' University, 1971, pp. 18-37 (from RKh-Radiotekhnika, No 12, Dec 70, Abstract No 12A871)

Translation: The diurnal and seasonal variation of fundamental parameters of meteoric propagation of radio waves are calculated for several experimental meteoric transmission paths. A preliminary evaluation has shown the necessity of accounting for the distribution of geocentric velocities of meteoric particles and limitation of reflection time. On the basis of an experiment, an evaluation is made of the extent of the effect of nonhomogeneities in the density distribution of meteoric particles striking the earth. A comparison of the results of calculations with experimental data shows the possibility of predicting the diurnal variation of the parameters of propagation. Four illustrations, bibliography of five titles. N. S.

1/1

USSR

UDC: 621.396.2:523.532

KURGANOV, R. A.

"Experimental and Theoretical Investigation of the Directivity of Meteoric Propagation of Radio Waves"

V sb. Meteorn. rasprostr. radiovoln (Meteoric Propagation of Radio Waves-- collection of works), Vyp. 7, Kazan', Kazan' University, 1970, pp 65-87 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A272)

Translation: The author presents a method used for long-term investigation of the directional effect of meteoric radio wave propagation. The results of the research are given in the form of normalized histograms of the probability distribution and duty cycle of meteoric radio reflections with respect to azimuth and angle of elevation. The results of theoretical research are presented. Based on analysis of the materials from experimental and theoretical studies, the author concludes that a natural parameter of directivity which has a clearly expressed diurnal variation is the optimum azimuth. The graphs necessary for predicting the directivity of propagation by meteors are plotted. Bibliography of 15 titles, 9 tables, N. S.

1/1

- 50 -

USSR

UDC 536.24

PETUKHOV, B. S., KURGANOV, V. A., GLADUNTSOV, A. I., Institute of High  
Temperatures of the Academy of Sciences USSR

"Experimental Study of Heat Transfer to a Turbulent Flow of Multiaatomic Gas  
Under High-Temperature Heats"

Moscow, Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1311-1315

**Abstract:** New experimental data are presented on local heat transfer in the heating of a turbulent flow of nitrogen and ammonia for which, as for other multiaatomic gases, it is characteristic to have a more considerable change in viscosity, specific heat, and especially heat conductivity with temperature than in the case of simple gases. The measurements were conducted in two stainless steel tubes with internal diameters of 3 and 4 mm. The length of the heating zone was 90-95 calibers. The tubes were heated by passing a dc current directly through the wall. Local heat releases were determined on the basis of the current and voltage drops at sections between potentiometric leads. Experiments on ammonia were conducted for Reynolds numbers of  $10^4$ - $2.4 \cdot 10^5$  at the output, an initial gas temperature of  $20$ - $150^\circ\text{C}$ , and a wall temperature up to  $900^\circ\text{C}$ . The density of the heat flux varied from  $1.1 \cdot 10^4$  to  $1/2$

- 114 -

USSR

PETUKHOV, S. B., et al., Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70,  
pp 1311-1315

$1.5 \cdot 10^6 \text{ W/m}^2$ . Control experiments on  $\text{N}_2$  were conducted at a gas temperature at the output of  $\sim 20^\circ\text{C}$ ; the Reynolds number varied from  $3 \cdot 10^4$  to  $10^5$  and the heat flow density varied from  $17.5 \cdot 10^3$  to  $5 \cdot 10^5 \text{ W/m}^2$ . The data show that in the case of the heating of ammonia, the functional dependence of Nu on Ra and Pr retains approximately the same form as in isothermal flow. A considerable increase in the heat conductivity of ammonia, especially in the region near the wall (the more heated region), to a considerable degree compensates for the weakening of convective exchange associated with the decrease in gas density under heating, and this causes a considerably weaker dependence of the Nusselt number on the temperature factor.

2/2

Acc. Nr.: AN0104123

KURGANOV V.A.

Ref. Code: U.P. 9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26" BY N. I. KAMOV, V. B. AL'PEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. YOFFE, M. A. KORFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, V. M. VEDENAYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-2 AND NK-8-4, AND THE DEVELOPMENT AND INTRODUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS" BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, I. A. SHKODA, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

1/2

Reel/Frame

19870555

Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUS, KO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATES", BY A. I. KIRYANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMOVICH, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE" BY YU. V. GERASIMOV, O. M. CHEKHOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREPNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, I. K. KOSYRIK, N. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

2/2

Reel/Frame  
19870556

KZ

USSR

UDC 8.74

ZLOBIN, V. K., ZLOBINA, N. V., KURGANOV, V. D.

"Computer Modeling of the Automatic Scanning of Three-Dimensional Objects  
for Recognition Purposes"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Technology -- Collection of Works), No. 10, Moscow, "Mashinostroyeniye", 1972,  
pp 221-228 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V675)

Translation: A technique is described for the computer modeling of the automatic scanning of three-dimensional objects for recognition purposes. A block diagram is given for a subprogram for showing some object for recognition with a given a priori probability, obtaining the angles of view of this object under the condition that the probabilities of their values are distributed according to a preassigned law, determining the values of the properties of the projection of the object corresponding to these angles, etc. The necessity of solving this problem always arises in the absence of actual equipment for the input of information to the computer. Authors

1/1

- 50 -

USSR

UDC 8.74

GRIGOR'YEV, V. L., ZLOBIN, V. I., KURGANOV, V. D.,

"Filtration of Images in Pattern Recognition"

V s. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Technology -- Collection of Works), No. 10, Moscow, "Mashinostroyeniye", 1972, pp 116-140 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V671)

Translation: Possible forms of noise in the input of iso-object information into a computer are analyzed. A critical review of several known methods of filtration is given. Single anisotropic filtration of discrete images is investigated. A new form of a recurrent filter having many advantages over known anisotropic filters was developed, and investigated. A procedure for measuring the intensity of noise and the automatic change depending on the value obtained for the filter aperture is proposed and investigated. A high-speed device was developed for measuring the intensity of noise in images of three-dimensional objects. A systematic study of the double filtration of images was conducted. The structures of filters of the first and second stages were determined. Recommendations are made concerning the parameters of a single smoothing device. 15 ref. Authors abstract.

1/1

USSR

UDC 8.74

ZLOBIN, V. K., ZLOBINA, N. V., KURGANOV, V. D.

"Digital Computer Simulation of the Process of Automatic Scanning of Three-Dimensional Objects During Recognition of Them"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Engineering — collection of works), Vyp. 10, Moscow, Mashinostroyeniya Press, 1972, pp 221-228 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V675)

Translation: A procedure is described for digital computer simulation of the process of automatic scanning of three-dimensional objects during recognition of them. A block diagram is presented for a subprogram which permits presentation of the object for recognition with a given a priori probability, obtaining of the scanning angles of the object under the condition that the probabilities of their values are distributed by a law given in advance, determination of the values of the properties of the projection of the object corresponding to these angles, and so on.

The necessity for solving the investigated problem always arises in the absence of real equipment for data input to a computer.

1/1

- 86 -

USSR

UDC 8.74

GRIGOR'YEV, V. L., ZLOBIN, V. K., KURGANOV, V. D.

"Filtration of Images in Pattern Recognition"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Engineering -- collection of works), Vyp. 10, Moscow, Mashinostroyeniye Press, 1972, pp 116-140 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V671)

Translation: Possible forms of noise during input of objective information to a digital computer are analyzed.

A critical analysis of some of the known filtration procedures is presented. A study was made of single anisotropic filtration of digitalized patterns.

A new type of recurrent filter has been developed which has a number of advantages by comparison with the known anisotropic ones, and it is investigated.

A procedure is proposed and investigated for measuring the intensity of noise and automatic variation as a function of the magnitude of the filter aperture obtained.

A high-speed device was developed for measuring the noise intensity in the patterns of three-dimensional objects. A systematic study of double filtration of the patterns is presented. The structures of the filters of the first and second stages are defined.

1/2

USSR

GRIGOR'YEV, V. L., et al., Avtomat. upr. i vychisl. tekhn., Vyp. 10, Moscow,  
Mashinostroyeniye Press, 1972, pp 116-140

Recommendations are made with respect to selecting the parameters of  
a single smoothing device. The bibliography has 15 entries.

2/2

USSR

UDC 632.95

5

MEL'NIKOV, N. N., ANDREYEVA, YE. I., PRONCHENKO, T. S., SHALATNEVSKY, A. V.,  
SIEURATOVA, G. N., KURGANOVA, L. B., YURKOVA, A. G., OBNIKOVA, V. I., and  
NOVIKOVA, R. G.

"Concerning Liquid Organomercury Seed Disinfectants"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 150-155 (From Ekh-Khiziya, No 11, Jun '72, Abstract No 111427)

Translation: From the results of hothouse and small-plot field tests of non-Soviet and experimental Soviet samples of liquid organomercury fungicides, as well as with consideration to non-Soviet research and practical use in such fungicides, the authors conclude that liquid preparations deserve attention as promising forms for use as seed disinfectants in Soviet agriculture.

1/1

USSR

UDC: None

MALINOVSKIY, B. N., PALAGIN, A. V., and KURGAYEV, A. F.

"Digital-Analog Computer Controlling Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztay, tovarnyye znaki,  
No 26, 1973, p 169, 386409

Translation: A device containing a passive memory unit connected with a counter-register of arguments, a coincidence circuit, an operational memory unit, and an adder whose output is connected to the inputs of the operational memory unit and the counter-register and whose inputs are connected through an analog-digital converter to an input signal switch and to the outputs of the passive and operational memories is distinguished in that, for the purpose of reducing the required passive memory volume, it contains a counter-register for increments of the arguments, whose inputs are connected with the outputs of the adder and the operational memory unit while the outputs are connected through the coincidence circuit to the controlling input of the analog-digital converter; the output of the adder is connected through the digital-analog converter to one of the inputs of the input signal switch and also through a nonlinear approximation input element in each quantizing section with a capacitor, for example, whose second plate is grounded.

1/1

USSR

UDC: 621.382.3

IGNAT'INA, F. G., БИЛЯНДА, В. М., БРЫЦЕВ, Б. А., МАЛЕНКОВ, А. А.,  
МЕДЕЛ'ШИЙ, Н. Ф., РАВИЧ, В. Н., ТИАРЕНКОВ, Б. В., Moscow Geophysical  
Institute, Physico-Technical Institute imeni A. F. Ioffe, Academy of  
Sciences of the USSR, Leningrad

"The Gallium Phosphide Electroluminescent Dynistor"

Leningrad, Физика и Техника Полупроводников, Vol. 5, No. 2, Sep 71, pp  
1695-1699

**Abstract:** This paper describes sources of red and green light with an S-shaped current-voltage curve based on epitaxial gallium phosphide PWFH structures -- electroluminescent dynistors. The electrical and electroluminescent characteristics and parameters of these devices are presented, and it is shown that the properties of electroluminescent gallium phosphide dynistors are similar to those of dynistors made of other materials.

1/1

USSR

UDC 541.182.2:541.183.022;541.183.26

DERYAGIN, B. V., and KURGIN, YU. S., Institute of Physical Chemistry, USSR  
Academy of Sciences, Moscow

"A Theory of Passivation of Condensation Growth in Mist Droplets by Use of  
Cetyl Alcohol Vapors"

Moscow, Kolloidnyy Zhurnal, Vol XXXIV, No 1, Jan-Feb 72, pp 35-42

**Abstract:** Considerable funds are being invested in study of control of phase transitions in warm clouds and fogs, and this is associated with various technical difficulties. Control of drop growth through formation of monolayers on them of surface-active substances is one promising avenue of approach.

The authors study theoretically several factors involved in droplet growth, and derive curves expressing them: 1) specific resistance to evaporation as related to surface pressure for a monolayer of cetyl alcohol at 25°; 2) surface pressure of the alcohol monolayer as related to surface necessary per molecule at 20°; and 3) approximate relation between condensation coefficient of water covered by the molecule and degree of filling of the monolayer -- both for pure water and for cetyl alcohol. Appropriate equations are given which should assist further research in this field.

1/1

1/2 016  
TITLE--FURAN OR ITS ALKYL OR CHLORO DERIVATIVES -U-  
UNCLASSIFIED PROCESSING DATE--04DEC70

AUTHOR--(03)-KURGINIAN, K.A., KARAPETYAN, N.G., KARAPETYAN, R.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,119

REFERENCE--OTKRYTIYA, IZOBRET, PROM, OBRAZTSY, TOVARNYE ZNAKI, 1970 47  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FURAN, ALKYL RADICAL, CHLORINATED ORGANIC COMPOUND, CHEMICAL  
PATENT, ORGANIC SYNTHESIS, CATALYST REGENERATION, OXIDATION, BUTADIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/0864

STEP NO--UR/0482/T0/000/000/0000/0000

CIRC ACCESSION NO--AAD136298

UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AA0136298

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FURAN OR ITS ALKYL OR CHLORDANALOGS IS PREPD. BY OXIDIZING A DIOLEFIN (E.G. BUTADIENE) WITH A CATALYTIC MIXT. OF AN AQ. SOLN. OF CU PRIME2POSITIVE AND PO CHLORIDE WITH THE PH OF THE CATALYTIC SOLN. 0.1-0.5 AND AT 60-70DEGREES. TO ENSURE CONTINUITY OF THE PROCESS THROUGH REGENERATION OF CUCL SUB2 AND REDN. OF THE INITIAL ACIDITY OF THE CATALYTIC SOLN., THE REACTION TAKES PLACE IN THE PRESENCE OF AIR.

UNCLASSIFIED

1/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70  
-U-

TITLE--COMPLETE CONFIGURATION INTERACTION FOR BENZYL RADICAL

AUTHOR--(03)--KURGLYAK, YU.A., MOZDOR, YE.V., KUPRIYEVICH, V.A.

COUNTRY OF INFO--USSR



SOURCE--UKRAINSKIY FIZICHESKIY ZHURNAL, 1970, VOL 15, NR 1, PP 48-58

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--ELECTRON STRUCTURE, FREE RADICAL, GROUND STATE, PROTON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1216

STEP NO--UR/0185/70/015/001/0048/0058

CIRC ACCESSION NO--APO116681

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16 OCT 70

CIRC ACCESSION NO--AP0116681

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRONIC STRUCTURE OF BENZYL RADICAL IN ITS GROUND STATE WAS COMPUTED ON A MODEL HAMILTONIAN DUE TO PARISER-PARR WITH REGARD FOR A COMPLETE CONFIGURATION INTERACTION AS WELL AS WITH DIFFERENT LIMITED CONFIGURATIONAL SETS BUILT ON SCF OPEN SHELL ORBITALS. CORRELATION ENERGY CURRESPONDING TO THIS MODEL WAS FOUND TO BE EQUAL TO 0.929722 EV, WITH THE SINGLY EXCITED CONFIGURATIONS ONLY 18PERCENT OF THIS ENERGY ARE TAKEN INTO ACCOUNT. EXTENSION OF THE BASIS DUE TU DOUBLY EXCITED CONFIGURATIONS LEADS TO AN ACCOUNT OF 94PERCENT OF CORRELATION ENERGY. ANALYSIS OF ACCURACY OF THE PROTON HYPERFINE SPLITTING CALCULATION CAUSED BY UNACCURATE COMPUTATION OF THE WAVE FUNCTION IS GIVEN. IF ONLY SINGLY AND EVEN DOUBLY EXCITED CONFIGURATIONS ARE TAKEN INTO ACCOUNT, THEN ONE CANNOT HOPE TO OBTAIN SPLITTINGS WITH AN ACCURACY OF MORE THAN 0.5 G. INCLUSION OF TRIPPLY EXCITED CONFIGURATIONS PERMITS THIS ERROR TO BE LOWERED BY ONE ORDER. IN ADDITION, THE USE OF THE SIMPLE MCCONNELL RELATION MAY LEAD TO AN ERROR IN SPLITTING CALCULATION OF NOT LESS THAN 1.5 G.

FACILITY:

INSTITUT FIZICHESKOY KHMII AN USSR, KIEV.

UNCLASSIFIED

L/2 026

UNCLASSIFIED

PROCESSING DATE--27/11/03

TITLE--EFFECTIVE RESISTANCE OF AN IMPERFECT SUPERCONDUCTOR OF THE SPIN-  
KIND IN AN OSCILLATING MAGNETIC FIELD -J-

AUTHOR-(OS)--ANDRIANOV, V.V., ZENKEVICH, V.B., KURGULYM, V.V., SYCHEV,  
V.V., TERNOVSKIY, F.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKoy FIZIKI 1970, VOL 58,  
NR 5, PP 1523-1531

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTOR, OSCILLATION, MAGNETIC FIELD EFFECT, DIRECT  
CURRENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0006

STEP NO--UR/0056/70/058/005/1523/1531

CIRC ACCESSION NO--AP0127656

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127656

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT IS INVESTIGATED OF AN EXTERNAL OSCILLATING MAGNETIC FIELD ON THE DIRECT CURRENT FLOWING IN AN IMPERFECT SUPERCONDUCTOR OF THE SECOND KIND. IT IS FOUND THAT WHEN THE VARIABLE COMPONENT OF THE EXTERNAL FIELD AMPLITUDE EXCEEDS A CERTAIN THRESHOLD VALUE AN EFFECTIVE DIRECT CURRENT RESISTANCE ARISES. THE DEPENDENCE OF THIS QUANTITY ON OSCILLATING FIELD FREQUENCY, AMPLITUDE OF VARIABLE COMPONENT, MAGNITUDE OF CONSTANT COMPONENT AND VALUE OF DIRECT CURRENT FLOWING IN THE SUPERCONDUCTOR IS DETERMINED. THE DEPENDENCE OF THE THRESHOLD AMPLITUDE OF THE EXTERNAL FIELD ON CURRENT AND FIELD STRENGTH IS INVESTIGATED. A THEORY IS PROPOSED WHICH EXPLAINS THE EXPERIMENTAL RESULTS.

FACILITY: INSTITUT VYSOKIKR TEMPERATUR,  
AKADEMII NAUK SSSR.

UNCLASSIFIED

USSR

UDC 547.37:547.26'118

PUDOVIK, A. N., ZIMIN, M. G., and KURGUZOVA, A. M., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Addition of  $\alpha$ -Hydroxyalkylphosphonate Esters to Unsaturated Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1964-1967

**Abstract:** The study of addition of  $\alpha$ -hydroxyalkylphosphonates to unsaturated compounds indicates that  $\alpha$ -hydroxyalkylphosphonates have a tendency to add to acrylonitriles, methacrylate and methyl vinyl ketone in the presence of a saturated solution of sodium ethoxide to form  $\alpha$ -(dialkoxyphosphono)alkyl  $\beta$ -cyano(aceto, carbomethoxy)alkyl ethers. The addition products were identified from the tabular data obtained by elementary analysis, molecular refraction and IR and NMR spectra. A comparison of the yields of the addition products shows diethyl  $\alpha$ -hydroxymethylphosphonate to be most reactive, diethyl  $\alpha$ -hydroxyethylphosphonate somewhat less reactive and diethyl  $\alpha$ -hydroxyisopropylphosphonate to be least reactive in the addition reactions. There appears to exist a specific regularity of an increasing tendency to addition reactions (primary > secondary > tertiary) for aliphatic alcohols.

1/1

USSR

*K*

UDC 547.26'118

PUDOVIK, A. N., NIKITINA, V. I., and KURGUZOVA, R. M.

"Reactions of Organophosphorus Compounds Containing Active Methylenes  
Groups With Methyl- $\beta$ -chlorovinyl Ketone and DL-Halogen Ethers"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 291-294

**Abstract:** The authors studied ketovinylation reactions of a series of organophosphorus compounds with an active methylene group (diethylphosphonoacetic ester, diethyl phosphonoacetone, diethyl esters of cyanoacetic and benzylphosphonic acids, as well as their monoalkyl derivatives). Ketovinylation of the sodium and potassium derivatives of phosphonoacetic ester and nitrilophosphonoacetic acid results in the formation of complex mixtures of products, of which mono- and di-ketovinylation products were obtained in low yields. Reactions with monoalkyl derivatives of the above compounds, as well as with mono-alkyl derivatives of dimethyl and diethyl phosphonoacetone proceed more smoothly. Monoketovinylation products were obtained in satisfactory yields in a number of reactions. In addition to ketovinylation, all the studied reactions displayed self-condensation of methyl-

1/2

USSR

PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 43, No 2, Feb 70,  
pp 291-294

$\beta$ -chlorovinyl ketone to give triacetyl benzene.

The interaction of ( $\beta$ -acylvinyl)ammonium salts with monoalkylated dimethyl phosphonoacetone and diethyl ester of benzylphosphonic acid was studied. High yields of the ketovinyl-alken products were obtained in this case, and no formation of self-condensation product was observed. No ketovinylation product could be obtained in the case of diethyl ester of benzylphosphonic acid.

Reactions of  $\alpha$ -chloromethyl propyl and  $\alpha$ -chlorodisethyl ethers with potassium derivatives of phosphonoacetic ester, phosphonoacetone and cyanophosphonethane were studied. Monoalkylation products were obtained in most cases, as well as dialkylation products in a number of cases. According to IR spectral data the alkylation products of phosphonoacetone are derivatives of its enol form.

2/2

- 197 -

1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REACTIONS OF ORGANOPHOSPHORUS COMPOUNDS CONTAINING ACTIVE METHYLENE  
GROUPS WITH METHYL BETA,CHLOROVINYL KETONE AND ALPHA,HALO ETHERS -U-  
AUTHOR-(03)-PUDOVIK, A.N., NIKITINA, V.I., KURGUZOVA, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. OSHCH. KHIM. 1970, 40(2), 291-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, METHYLENE, CHLORINATED ORGANIC  
COMPOUND, KETONE, HALOGENATED ORGANIC COMPOUND, ETHER, TRIETHYLAMINE,  
AMMONIUM SALT, CYANIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1434

STEP NO--UR/0079/70/004/002/0291/0294

CIRC ACCESSION NO--A00116881

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116881

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING THE K OR NA DERIV. OF APPROPRIATE ACTIVE METHYLENE COMPODS. WITH ClCH:CHAC OVER 1-1.5 HR WITH ICE COOLING GAVE, AFTER HEATING TO COMPLETE THE REACTION, THE FOLLOWING ACCH:CHCRR PRIME R DOUBLE PRIME (R, R PRIME AND R DOUBLE PRIME SHOWN): (FORMULA SHOWN ON MICROFICHE). TREATING THE P COMPD. CONTG. AN ACTIVE METHYLENE GROUP, WITH ET SUB3 N AND EQUIMOLAR AMT, ClCH:CHAC GAVE OVERNIGHT A SOLID MASS WHICH WAS HEATED 8-10 HR IN MEPH TO YIELD THE PRODUCTS OF KETO VINYLATION BY MEANS OF TRIALKYL,ACYLVINYLMONIUM SALTS. FOR ALKYLATION WITH HALOETHERS THE K DERIV. OF THE ACTIVE METHYLENE COMPD. WAS TREATED WITH HALOETHER AND HELD 1-2 HR AT ROOM TEMP. FOLLOWING WERE REPORTED: (FORMULA SHOWN ON MICROFICHE).

UNCLASSIFIED

SEE KURVA...

FOR KURVA...

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--MAGNETIC PROPERTIES OF COMPLEXES OF COPPER(II) WITH SCHIFF BASES  
DERIVATIVES OF IMINOXYL RADICALS -U-  
AETHLR-(64)-MEZHIDOV, A.A., NAMEDOVA, YU.G., LYUBOVSKIY, R.B.,  
KURICHENKO, L.N.  
COUNTRY OF INFO--USSR *K*

SOURCE--TEUK. EKSP. KHM. 1970, 6(1), 133-7 (RUSSI)

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MAGNETIC PROPERTY, COPPER COMPLEX, SCHIFF BASE, IMINE, EPR  
SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1169

STEP NO--UR/0379/70/065/001/0133/0137

CIRC ACCESSION NO--AP0128591

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APG128591

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE DPM SPECTRA AND THE MAGNETIC SUSCEPTIBILITY WERE OBTAINED FOR COMPLEXES OF Cu WITH PARAMAGNETIC AND DIAMAGNETIC SCHIFF BASES. THE RESULTS ARE TABULATED. THE DATA FOR THE COMPLEXES WITH THE PARAMAGNETIC SCHIFF BASES SHOW THAT THE LARGER THAN N,O GROUP OF THE PARAMAGNETIC LIGAND CAN PARTICIPATE IN THE FORMATION OF THE COORDINATION BOND WITH THE CENTRAL METAL ION. IN THIS CASE, DIAMAGNETIC AS WELL AS PARAMAGNETIC COMPLEXES ARE FORMED. APPARENTLY, THE BCND WITH THE RADICAL GROUP IS FORMED THROUGH THE C ATOM.  
FACILITY: INST. KHM. FIZ., CHERNOGOLOVKA, USSR.

UNCLASSIFIED

USSR

UDC: 519.1

TKEMALADZE, N. T., KURIDZE, M. V.

"On a Problem of Constructing a Plane Connected Graph"

Tbilisi, Nekotorye zadachi raspoznavaniya obrazov i zerkali grafov--"bornyik  
(Some Problems of Pattern Recognition and the Theory of Graphs--collection  
of works), "Metsnereba", 1972, pp 68-73 (from RZh-Kibernetika, No 7, Jul  
73, abstract No 7V392 by I. Sigal)

Translation: The authors consider an arbitrary finite graph  $G(V, E)$  where  $V$  is the set of vertices and  $E$  is the set of edges. The vertices of the graph  $v_i \in V$  are points in a plane with coordinates  $(x_i, y_i)$ , and the edges are segments of straight lines connecting the vertices of the graph. It is required to isolate the subset of vertices  $V^* \subseteq V$  and to construct a plane connected graph  $G^*(V^*, E^*)$  such that  $G^*$  has a unique finite bound, i. e.  $G^*$  is an elementary cycle; the resultant bound includes all vertices of the set  $V \setminus V^*$  and its edge is a convex multiple-angle cycle. To solve this problem the authors use the well known algorithm of constructing a convex shell of a finite set of points  $\{v_i\}$ : this shell is a convex polygon of minimum perimeter, each vertex of which coincides with one

1/2

USSR

TKEMALADZE, N. T., KURIDZE, M. V., Nekotor. zadachi raspoznavaniya obrazov i teorii grafov, "Metsnereba", 1972, pp 68-73

of the points from  $\{v_i\}$ , while all other points from  $\{v_i\}$  fall inside the constructed polygon.

2/2

- 22 -

USSR

UDC: 519.1

KURIDZE, M. V., TKEMALADZE, N. T.

"On a Problem of Constructing a Tree With Two End Vertices and Minimum Length"

Tbilisi, Nekotor. zadachi raspoznavaniya obrazov i teorii grafov--sbornik (Some Problems of Pattern Recognition and the Theory of Graphs--collection of works), "Metsnereba", 1972, pp 74-80 (from RZh-Mikrofizika, No 7, Jul 73, abstract No 7V393 by I. Sigal)

Translation: The paper deals with the problem of constructing a tree on a set of trees  $T = \{T_i\}$ ,  $i = 1, 2, \dots, k$ , and on a set of isolated vertices  $t = \{t_j\}$ ,  $j = 1, 2, \dots, m$ . In order to construct a tree in the given problem without adding new vertices, it is necessary and sufficient to add  $m+k-1$  edges without forming cycles. The paper poses the problem of constructing a tree such that the sum of the lengths of the added edges is a minimum.

1/1

- 22 -

USSR

UDC: 535.39:537.311.33

KURIK, M. V., ROZHKO, A. Kh.

"On the Determination of Optical Density of Semiconductor Layers on Transparent Substrates"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 532-534

**Abstract:** The authors investigate a method of determining the optical density of a semiconductive film on a substrate which is transparent in the region of absorption of the film. The procedure is based on evaluating the expression  $(R-R')/T$ , where R and R' are experimentally determined values of reflection from the film and from the substrate respectively, and T is the transmission of the film. This eliminates the effect of interference due to repeated reflection from the boundary regions of the film. An analysis is made of the possible errors of the method when different measurement procedures are used. The authors thank M. P. Litsina and all participants in the Seminar of the Optics Department of the Institute of Semiconductors of the Ukrainian Academy of Sciences for constructive criticism.

1/1

1/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--TEMPERATURE DEPENDENCE OF THE DAVYDOV SPLITTING IN ANTHRACENE -U-.

AUTHOR--KURIK, M.V., PIRYATINSKIY, YU.P., POPEL, O.M., FROLLOVA, E.K.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 2, PP 8-3-906

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TEMPERATURE DEPENDENCE, ANTHRACENE, PHOTCONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY RFEL/FRAME--1989/0221

STEP NO--GE/0030/70/017/002/0803/0F06

CIRC ACCESSION NO--AP0106877

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106877  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DAVYDOV SPLITTING FOR  
PHOTOCONDUCTIVITY AND ABSORPTION IN ANTHRACENE HAS BEEN MEASURED IN A  
WIDE TEMPERATURE RANGE. A PHENOMENOLOGICAL THEORY IS DEVELOPED WHICH  
EXPLAINS QUALITATIVELY THE OBSERVED REGULARITIES.

UNCLASSIFIED

172 014 UNCLASSIFIED PROCESSING DATE--11 SEP 70  
TITLE--TEMPERATURE DEPENDENCE OF THE DAVYDOV SPLITTING IN ANTHRACENE

AUTHOR--KURIK, M.V., PIRYATINSKIY, YU.P., POPEL, O.M., FROLOVA, E.K.

COUNTRY OF INFO--USSR *K*

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 2, PP 83-806

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TEMPERATURE DEPENDENCE, ANTHRACENE, PHOTCONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0221

STEP NO--GE/0030/T07C37/002/0803/0F05

CIRC ACCESSION NO--AP0106877

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106877

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DAVYDOV SPLITTING FOR PHOTOCOCONDUCTIVITY AND ABSORPTION IN ANTHRACENE HAS BEEN MEASURED IN A WIDE TEMPERATURE RANGE. A PHENOMENOLOGICAL THEORY IS DEVELOPED WHICH EXPLAINS QUALITATIVELY THE OBSERVED REGULARITIES.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EXCITON PHONON INTERACTION IN CADMIUM SULFIDE -U-

AUTHOR--(02)-GNATENKO, YU.P., KURIK, M.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVRD. TELA 1970, 12(4), 1143-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, PHONON, EXCITON, ABSORPTION-HAND SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0378

STEP NO--UR/0181/7D/012/004/1143/1148

CIRC ACCESSION NO--AP0126133

CLASSIFICATION

2/2 024

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126133

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONS WERE CARRIED OUT OF THE URBACH RULE AND THE SHAPE OF THE A ABSORPTION BAND AT 4.2-300 DEGREES K. IT FOLLOWS FROM THE ANAL. OF THE URBACH RULE THAT EXCITON PHONON INTERACTION IN CDS AT LOW TEMPS. IS WEAK, THE MAGNITUDE OF INTERACTION BEING APPROX. 0.27. THE LONG WAVELENGTH BRANCH OF THE EXCITON ABSORPTION BAND IN CDS IS FORMED BY PHONONS, THE ENERGY OF WHICH IS CLOSE TO THE ENERGY OF TRANSVERSE ACOUSTICAL PHONONS. THE SHAPE OF THE A ABSORPTION BAND IS APPROXIMATED BY THE VOIGHT FUNCTION. THE PARAMETERS OF THIS FUNCTION WERE DETERM. FROM THE TEMP. DEPENDENCE OF THE SHAPE OF THE ABSORPTION BAND, IT WAS FOUND THAT THIS ABSORPTION BAND IS FORMED MAINLY BY PHONONS CLOSE IN ENERGY TO LONGITUDINAL OPTICAL PHONONS.

FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

1/2 029

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

TITLE--NONRADIATIVE TRANSFER OF ELECTRONIC EXCITATION BETWEEN ANTHRACENE  
AND NAPHTHACENE IN A NAPHTHALENE CRYSTAL -U-

AUTHOR-(02)-KURIK, M.V., FROLLOVA, YE.K.

COUNTRY OF INFO-USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 585-B

DATE PUBLISHED---70

SUBJECT AREAS—CHEMISTRY, PHYSICS

TOPIC TAGS—ABSORPTION SPECTRUM, LUMINESCENCE SPECTRUM, NAPHTHALENE,  
ANTHRACENE, CRYSTAL STRUCTURE, EXCITED STATE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0845

STEP NO--UR/0048/70/034/003/0585/0588

CIRC ACCESSION NU--APO124510

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO—AP0124510

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE ABSORPTION AND LUMINESCENCE SPECTRA WERE STUDIED AT 77DEGREESK, TO DET. THE PROBABILITY OF THE NONRADIATIVE TRANSFER IN NAPHTHALENE CRYSTALS WITH EQUAL AMTS. OF ANTHRACENE (DONOR) AND NAPHTHACENE (ACCEPTOR). THE LUMINESCENCE KINETICS SHOWS THAT THE PROBABILITY PARAMETER OF THE NONRADIATIVE TRANSFER P SUBDA CAN BE DEDU. IN A STEADY STATE FROM THE FORMULA  $I_{SUB2} / I_{SUB1}$  EQUALS  $\tau_P / \tau_{SUBDA}$ , WHERE  $\tau_P$  IS THE RELAXATION TIME,  $I_{SUB1}$  IS THE INTENSITY OF LUMINESCENCE OF ANTHRACENE AT 412.5 NM, AND  $I_{SUB2}$  IS THE INTENSITY OF LUMINESCENCE OF NAPHTHACENE AT 532.7 NM. THE EXPTL. CURVE IN  $I_{SUB2} / I_{SUB1}$  VS. IN R NEGATIVE PRIME1 GAVE A R NEGATIVE PRIME2.2 DEPENDENCE, FOR R EQUALS 3.6-51.2 NM (R EQUALS AV. DISTANCE BETWEEN NEIGHBORING ACCEPTOR AND DONOR MOLS.). AT 4-300DEGREESK,  $I_{SUB2} / I_{SUB1}$  DECREASES MONOTONICALLY WITH DECREASING TEMP.; THIS INDICATES THE PRESENCE OF PROCESSES IN WHICH THE LATTICE VIBRATIONS PLAY A ROLE. THUS, THE TRANSFER OF ELECTRONIC EXCITATION BETWEEN THE IMPURITY ANTHRACENE AND NAPHTHACENE MOls. IN THE CRYSTAL LATTICE OCCURS WHEN R IS SMALLER THAN R NEGATIVE PRIME6 (AS IT FOLLOWS FROM THE THEORY) DUE TO THE PARTICIPATION OF LATTICE PHONONS IN THE TRANSFER.

FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

1/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--DIFFUSION OF ANTIMONY, PHOSPHORUS, AND BORON INTO SILICON FOR  
DIFFERENT SURFACE CONCENTRATIONS OF THE DIFFUSANT -U-  
AUTHOR-(04)-USKOV, V.A., PAVLOV, P.V., KURILCHIK, E.V., PASHKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1504-10

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--SEMICONDUCTOR MATERIAL, BORON, ANTIMONY, PHOSPHORUS, SILICON,  
PHYSICAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/0159

STEP NO--UR/0181/70/012/005/1504/1510

CIRC ACCESSION NO--APO129415  
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF SB, P, AND B IN  
SI WAS STUDIED AND THE RESULTS COMPARED WITH THEORY. LIMITS ARE  
ESTABLISHED FOR APPLICABILITY OF THE AV. FIELD METHOD IN THE CASE OF  
IMPURITY DIFFUSION INTO A SEMICONDUCTOR. FACILITY: GORKI, GOS,  
UNIV. IM. LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

USSR

UDC 8.74

KURIL'CHIK, I. V., DRUZHININ, V. S.

"Some Problems of Organizing the Dictionary Library"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach (Mathematical Economic Methods and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 213-216 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V448)

Translation: The dictionary library of the main computation center of the USSR Gosplan is a set of files of dictionary information, technical storage media and services to insure functioning of it. The dictionary library is a part of the information library and is designated for storage and maintenance of the dictionary information files.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--POSSIBLE ANISOTROPY OF THE RADIO EMISSION OF CERTAIN QUASARS -U-

AUTHOR--KURILCHIK, V.N.

COUNTRY OF INFO--USSR

K

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO 1, 1970, P 27-31

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--QUASAR, RADIO EMISSION, ANISOTROPY, EMISSION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/1737

STEP NO--UR/0033/70/047/001/0027/0031

CIRC ACCESSION NO--AP0115566

THIS DOCUMENT

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115566

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE NATURE OF THE ANOMALOUSLY FLAT EMISSION SPECTRA OF QUASARS ON THE BASIS OF AN ANALYSIS OF THE EMISSION SPECTRA OF QUASARS IN THE 3CP CATALOG, USING COMMON VALUES OF THE EXPONENT OF THE POWER LAW ENERGY SPECTRUM OF RELATIVISTIC ELECTRONS HAVING A SYNCHROTRON EMISSION MECHANISM. IT IS SHOWN THAT THE FLAT SPECTRA MAY RESULT FROM HIGHLY ANISOTROPIC RELATIVISTIC ELECTRON FLUXES WHICH PROPAGATE FROM THE QUASAR NUCLEI IN A RELATIVELY STRONG (ON THE ORDER OF SEVERAL GAUSS) UNIFORM MAGNETIC FIELD HAVING THE PROPER ORIENTATION WITH RESPECT TO THE OBSERVER. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

: Acc. Nr.

*AP0036350*

Abstracting Service:  
CHEMICAL ABST. 44-74

Ref. Code

REF. CODE  
UR 000?

69111r Solubility of hydrated tin oxide complexes and cassiterite crystallization under hydrothermal conditions. Kuznetsov, G. E.; Barsukov, V. I. (V. I. Vernadskii Inst. Geochim. Anal. Chem., Moscow, USSR). *Geokhimiya* 1970, (1), 33-42 (Russ.). The solv. of Sn(IV) hydroxide in KOH and NaOH solns. depending on the pH at 100°, 200 and 300° has been studied. The solv. decrease with temp. rise (up to  $2 \times 10^{-5}$  mole/l. Sn) is accompanied by a change of the compn. of the solid phase which at 100° corresponds to varlamoffite,  $\text{SnO}_{1.2}\text{H}_2\text{O}$  and at 300° to cassiterite,  $\text{SnO}_3$ . By the method of solv. the complexing in the systems  $\text{Sn}(\text{OH})_6\text{-KOH-H}_2\text{O}$  and  $\text{Sn}(\text{OH})_6\text{-NaOH-H}_2\text{O}$  at 100° has been investigated. Neutral and alk. solutions (pH 7-11) complexes  $\text{Sn}(\text{OH})^{4-}$  are formed. Stability consts.  $\beta_{10}$  of these complexes:  $\beta_{10} = 5.0 \times 10^4$ ,  $\beta_{20} = 2.6 \times 10^4$ ,  $\beta_{30} = 4.0 \times 10^4$ ,  $\beta_{40} = 4.1 \times 10^4$ , have been calcd. as well as the consts. of their hydrolysis:  $K_{10} = 2.9 \times 10^{-4}$ ,  $K_{20} = 8.7 \times 10^{-10}$ ,  $K_{30} = 5.7 \times 10^{-10}$ .

REEL/FRAME  
19721188

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002201630010-6"

1/2 010 UNCLASSIFIED PROCESSING DATE--2740870  
TITLE--RAPID METHOD FOR DETERMINING SMALL AMOUNTS OF FLUORINE IN ROCKS -U-

AUTHOR--KURILCHIKOVA, G.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHM. 1970, 25(3), 563-6

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--FLUORINE, ROCK, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0474

STEP NO--UR/0075/70/025/003/0563/0566

CIRC ACCESSION NO--APO126226

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO DETERMINE 0.40-0.02PERCENT F IN  
ROCKS OF VARIOUS COMPN., THE SAMPLE IS DECOMPO. BY FUSION WITH NA SUBL.  
FE(OH) SUBL AT PH 7, AND F IS DETERD. PHOTOMETRICALLY AT 582 NM BY THE  
DECREASE OF THE ABSORBANCE OF THE ARSENATO I,AL COMPLEX AT CONST. SALT  
CONTENT AND PH 4.5. FACILITY: INST. GEOCHEM. ALAL. CHEM.,  
MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.315.592

GERSHENZON, Ye. M., IL'IN, V. A., KURILENKO, I. N., and DMITRIEVA-  
GORSKAYA, L. B.

"Reluctance in n-InSb With a Conductance Impurity"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1863-1873

**Abstract:** The purpose of this paper is to set up a connection between the nature of the reluctance, as a function of the magnetic field and the temperature, and the electrical conductivity mechanisms of a semiconductor. The semiconductor used for the experiments described in the paper was n-InSb since all characteristic dependences of the reluctance can be realized in this material with comparatively weak magnetic fields. The transverse and longitudinal reluctances were investigated in the temperature range of 0.1-10° K and at magnetic fields of 0-5000 oersteds. A description of the preparation of the specimens is given together with a table of their parameters. Differences in the temperature behavior of the reluctance of specimens with various types of conductivity as well

3/2

USSR

GERSHENZON, Yu. M., et al., Pirika i tekhnika polipropenofibra, N, 10, 1973,  
pp 1866-1873

as both positive and negative reluctance in those specimens are  
discussed. The authors thank V. S. Ivlev for preparing the n-fibre  
specimens.

2/2

USSR

UDC 536.664+541.183.12

NEKRYACH, YE. F., GOROKHOVATSKAYA, N. V., SAMCHENKO, Z. A., KURILENKO, O. D.  
"Sorption-Thermochemical Study of Hydration of Macroporous KU-23 Sulfocation  
Exchange Resin"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVIII, No 6, 1972, pp 581-586

**Abstract:** The sorption and thermochemical methods were used to study the hydration of macroporous KU-23 sulfocation exchange resin in hydride and four salt forms ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ). The thermodynamic functions of the sorbed water were defined on the basis of the data obtained, and study was made of the nature of their variation during the hydration process. On the graphs of the differential entropy, there are three sections corresponding to different hydration mechanisms. The results of the studies are compared with data obtained earlier for the KU-cation exchange resin.

A study was made of the 20° isotherms of the sorption of water vapor taken on a vacuum sorption device with spring-quartz scales, the heats of wetting by water defined in an adiabatic calorimeter and the thermodynamic functions of the water sorbed by the ion forms of the macroporous KU-23 sulfocation exchange resin. The procedure for preparing and performing the measurements was described previously [M. Dubinin, et al., Fiziko-khimicheskie osnovy protivogazovogo dela, Moscow, 1939; A. V. Dumanskiy, et al., Ukr. Khir. zh., No 26, 389, 1960].

1/1

USSR

UDC [537.826+537.311.33]:[537+535]

DEREVYANKO, A. I., and KURILENKO, O. D.

"Analysis of Dielectric Relaxation in Plane of Complex Permittivity"

V sb. Fiz.-khim. mekh. i liofil'noet' disperz. sistem (Physicochemical Mechanics and Lyophilic Nature of Disperse Systems -- Collection of Works), Vyp. 2, Kiev, "Nauk. Dumka," 1971, pp 141-147 (from NZh-Fizika, No 10, Oct 71, Abstract No 10YE593 from summary)

Translation: On the basis of the symbolic method a formal analysis is made of frequency dependences of the dielectric parameters of a substance, and the properties of equivalent circuits are discussed in terms of complex permittivity and complex specific electrical conductivity. Certain new properties of diagrams in the complex plane are established, and on this basis simple correlations for finding dispersion parameters are suggested.

- END -

CGO: 1862-W

1/1

- 71 -

USSR

UDC 541.183.5

GOROKHOVATSKAYA, N. V., NEKRYACH, YE. F., and KURILENKO, O. D., Institute of Colloidal Chemistry and Chemistry of Water, Ukrainian Academy of Sciences

"Sorption of Water Vapor by the Strong-Acidic Cationite KU-5"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVII, No 8, 71, pp 785-789

**Abstract:** Hydration of the KU-5 sulfocationite, apart from immediate practical importance, is of definite theoretical interest. Comparison of the sorption properties of corresponding saline forms of KU-5 and KU-2 having the same fixated ions ( $-SO_3H$ ) but different matrices will evidently show the effect which chemical structure of the skeleton and certain physico-chemical parameters of the ionite have on interaction between water molecules and active centers of the ionite.

The  $K^+$ ,  $Na^+$ ,  $Li^+$ ,  $Ca^{2+}$ ,  $Mg^{2+}$  and  $Al^{3+}$  forms of commercial KU-5 were tested, completeness of substitution being judged by the  $Al^{3+}$  form (analytical determination of amount of Al in the initial solution and following passage through the resin).

Water-vapor isotherms for KU-5 were similar in shape to those of other high-hydrophylic substances (initial sharp rise followed by more moderate rise 1/2

USSR

GOROKHOVATSKAYA, N. V., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVII,  
No 8, 1971, pp 785-789

and final sharp rise). Evidently a monolayer of adsorbed water molecules is first formed at the most active centers, followed by hydration of less active centers and finally by capillary condensation of the vapor, accompanied by swelling of the ionite. Graphic representations of data obtained are included.

2/2

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SWELLING OF STRONGLY ACID KU,1 AND WEAKLY ACID KB,4P2 CATION  
EXCHANGERS IN DIOXANE WATER MIXTURES -U-  
AUTHOR--(02)-LESHCHENKO, V.P., KURILENKO, O.O.

COUNTRY OF INFO--USSR *K*

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 46-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, DIOXANE, WATER, ABSORPTION/(U)KU1 ION  
EXCHANGE RESIN, (U)KB4P2 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1616

STEP NO--UR/0073/70/036/001/0046/0048

CIRC ACCESSION NU--APO125238

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION OF DIOXANE BY THE H PRIME POSITIVE, Li PRIME POSITIVE, K PRIME POSITIVE, Cu PRIME2 POSITIVE, AND Fe PRIME3 POSITIVE FORMS OF KU,I AND THE H PRIME POSITIVE FORM OF KB,4P2 FROM DIOXANE,H SUB2 O MIXTS. OF VARIOUS CONCNS. WAS DETO. THE SWELLING VARIED WITH THE CATION AND RESIN, AND WAS MAX. FOR A 50PERCENT SOLN. OF ALL THE FORMS OF KU,I AND FOR A 75PERCENT SOLN. OF KB,4P2. AT THIS CCNCN., THERE WAS NO PREFERENTIAL ABSORPTION OF DIOXANE.  
FACILITY: KIEV. TEKHNL. INST. PISSHCH. PROM., KIEV, USSR.

UNCLASSIFIED

USSR

K

OSTRENKO, V. YA., KURILENKO, V. KH., ONISHECHENKO, I. I.

"Defects in Hot Rolled Titanium Alloyed Tubing"

Dnepropetrovsk, Metallurgicheskaya I Gornorudnaya Promstolarnost',  
No 1, Jan-Feb 70, pp 29-30

Abstract: Hot rolling of titanium tubes in automatic mills has resulted in defects on the external and internal surfaces of the tubing, particularly in the broaching of billets. The tendency of titanium to adhere to the tools is worsened by the high contact stresses under high temperature conditions and the significant slippage of the metal relative to the surface of the guiding lines in the broaching mill. Another no less important factor in the formation of defects is the gas saturation of the titanium and the formation of a brittle layer on the surface. The most frequent types of defects and conditions of their formation are described and illustrated. These defects increase consumption of metal in the manufacture of the tubing. At the present time, the formation of defects is reduced by more frequent replacement of 1/2

.. 84 ..

USSR

OSENKO, V. YA., et al., Metallurgicheskaya I Gornorudnaya  
Promyshlennost', No 1, Jan-Feb 70, pp 29-30

line guides. The authors performed an experiment involving blowing compressed air through the mill at 6 atm. pressure between operating cycles. This method was somewhat successful in reducing the frequency of defect formation.

2/2

USSR

UDC 615.21+615.22]:547.785.5].012.1

PECHENINA, V. M., NUCHINA, N. A., ABATUROVA, K. A., GORELENKOVKOVA, I. P.,  
MIKHAYLOVA, T. V., ~~KURTSEVA, V. M.~~, and GILEV, A. P., Novokuznetsk Scientific  
Chemical-Pharmaceutical Research Institute

"Synthesis and Investigation of Some Benzimidazole Derivatives. V. Esters and  
Ethers of 1-Hydroxymethyl- and 1-(2-Hydroxyethyl)-benzimidazoles"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 10, Oct 71, pp 13-15

Abstract: To an alkoxide obtained from 0.04 g-atom of metallic Na and corresponding alcohol, 0.02 mole of 1-chloromethylbenzimidazole hydrochloride is added with stirring, the mixture is left standing for several hours, the precipitate is removed by filtration, the filtrate is evaporated, and the oily residue is dissolved in ethanol. Upon addition of an alcoholic acid solution the respective salts of 1-hydroxymethylbenzimidazole ether is precipitated. To obtain esters of 1-(2-hydroxyethyl)benzimidazole, a previously described method was used. The compounds are moderately toxic, affecting slightly the central nervous system, lowering rectal temperature, and disturbed coordination in some animals. Specific physiological effects of select representatives are reported, but no general trend is noticeable.

1/1

- 16 -

USSR

UDC 621.732.413

KATUNIN, V. V., KURILIN, B. I.

"Analysis of a Resonator with a Contactless Plunger"

Radiotekhnika. Resp. mezhved. nauchno-tekh. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 102-110 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B147)

Translation: Expressions are obtained for the Q-factor of the resonance impedance and resonance equation of a resonator. There are 6 illustrations and a 5-entry bibliography.

1/1

- 151 -

UDC 534.26

USSR

KURILIKIN, Yu. V., and LYAMSHEV, L. M., Acoustics Institute, Academy of Sciences USSR

"Reflection of Ultrasonic Waves by a CdSe Crystal in Water"

Moscow, Akusticheskiy Zhurnal, Vol. 27, vyp 1, 1971, pp 74-78

**Abstract:** This article cites the results from an experimental investigation of the reflection of ultrasonic waves by a CdSe crystal plate in water, for purposes of clarifying the influence of the interaction between elastic oscillations and conduction electrons in a crystal on the reflective characteristics of ultrasonic waves.

The tests were conducted at a frequency of 5 mHz under pulsed conditions with a pulse duration from 20 to 100 usec and a pulse repetition frequency of 200 Hz. A rectangular plate  $3.5 \times 3 \times 9 \text{ mm}^3$  in size, was cut so that its greatest dimension coincided with the optical axis of the crystal. The polar characteristics of the reflection from the plate were measured in the plane of the optical axis of the crystal.

1/2

USSR

KURILKIN, Yu. V., and LYAMSHEV, L. M., Akusticheskiy Zhurnal, Vol 27, vyp 1, 1971, pp 74-78

It was established that the amplitude of the echo-signal reflection is decreased by illuminating the crystal. When a drift electric field is applied on the crystal, the amplitude of the reflected echo-signal increases, then fluctuates, and diminishes.

The results cited here characterize the attenuation of normal waves in a photoconducting crystal, when the waves are propagated along the optical axis, as a function of crystal illumination.

It is obvious from the article that because of the interaction with conduction electrons, the acoustic waves may either be amplified or absorbed in a liquid when reflected from plates of piezosemiconducting crystals.

The article contains 7 figures; six literature references are cited.

2/2

- 74 -

## Magnetohydrodynamics

USSR

KURILKO, V. I.; et al

"The Acceleration of Electrons in the Slow Wave Field of a Plasma Waveguide"  
Moscow, Atomnaya Energiya; March, 1973; pp 181-4

**ABSTRACT:** This work concerns an experimental investigation of electron beam interaction with a slow wave field of limited amplitude in an anisotropic plasma waveguide. The capture of injected beam particles in this waveguide was observed. The dependence of the parameters of the main beam of captured particles on plasma characteristics was measured.

Accelerated electrons of average energy  $V_{acc} = 100$  kev and current  $I_{acc} = 0.5$  a were obtained for an injection energy  $V_{inj} = 10$  kev and  $I_{inj} = 3$  a when  $v_{ph} = \text{const} < c$ . It is shown that the dependence of the accelerated beam current, average energy, and energy spectrum width on the value of wave phase velocity and UHF power level agrees well with theory.

The article includes six figures. There are nine bibliographic references.

1/1

USSR

KRAMSKOY, G. D.; KURILKO, V. I.; SHENDRIK, V.A. (Physicochemical Institute of the Ukrainian Academy of Sciences, Khar'kov)

"Theory of Lateral Instability of a Beam in the Resonator Section of a Linear Electron Accelerator"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; October, 1972; pp 1608-16

**ABSTRACT:** The authors develop a theory of the lateral instability of a relativistic electron beam caused by the effect of a build-up, in the resonator section of an accelerator, of a spontaneous Cerenkov radiation of beam clusters on a defocussing, axially unsymmetric wave. A problem concerning deviation of the beam when acted upon by the wave is solved by a self-consistent approximation. Analytic expressions are found which determine the dependence of a lateral shift of a cluster on its number, the parameters of the accelerator (geometry, quality factor, intensity of the accelerating field), energy, and beam current. It is shown that in the case of the resonator section a build-up of lateral instability has a threshold character: when the beam current exceeds some threshold value, the lateral displacement of the beam increases exponentially with time. The analytic variations of the threshold currents with the parameters of the accelerator, injection energy, and intensity of the accelerating field are found.

1/1 The theoretical results agree satisfactorily with the experimental data.

- END -

CSO: 1860-1

USSR

SHVETS, O. M., KURILKO, V. I., TOLOK, V. T.

UDC 533.916

"Stochastic High-Frequency Ion Heating"

Kiev, Fizika plazmy i problemy upravlyayemogo termovadernogo sinteza, 1971, Naukova dumka, pp 66-90

Abstract: Although the authors admit the efficiency of obtaining high-energy ions in a dense plasma by heating the latter with a high-frequency field, they find in that method the objection that the energy introduced into the plasma by a monochromatic high-frequency field is in the form of regular collective ion motion in the field of the wave. There is then no relative motion and collision of the ions, and a conversion of this regular collective ion motion into chaotic motion through thermalization of the energy introduced into the plasma becomes necessary. The article lists three fundamental effects leading to the thermalization and indicates how they can be achieved theoretically; they are: paired collisions of particles with various charge-mass ratios; collisionless collective attenuation caused by Cerenkov or Doppler

1/2

- 83 -

USSR •

SHVETS, O. M. et al, Fizika plasmy i problemy upravlyayemogo  
termoyadernogo sinteza 1971, Naukova dumka, pp 36-90

absorption of the wave energy by particles in resonance with the wave; nonlinear effects causing fractionalization of the energy of the original wave. Conditions to be met to obtain these effects are found.

2/2

USSR

UDC 533.951.2/.3

KURILKO, V. I., ULLSHMID, I. V.

"Nonlinear Theory of Čerenkov Excitation of a Plasma by a Modulated Beam of Charged Particles"

V sb. Fiz. plazmy i probl. upravlyayemogo termovadern. sinteza, Vyp. 1  
(Plasma Physics and Problems of Controlled Thermonuclear Synthesis. No 1  
--collection of works), Kiev, "Nauk. dumka", 1971, pp 109-119 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10B117)

Translation: A nonlinear theory is developed for Čerenkov interaction between a modulated beam of charged particles and a slow-wave resonator for the case where the rise in amplitude of the Čerenkov field in the resonator is stabilized by the reverse effect of the field on the motion of beam particles. The characteristic rise time and maximum amplitude of the field are calculated. The physical meaning of the results is discussed. Bibliography of eleven titles. Authors' abstract.

1/1

- 94 -

## Nitrogen Compounds

USSR

UDC 615.225.2:547.567.33.012.1:542.9

SHVEDOV, V. I., KULIKOVA, G. M., and GRINEV, A. N., All-Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Research in the Field of Quinones. XLVIII. Synthesis of Derivatives of 2-Benzyl-5-Oxyindole and 2-Benzyl-5-Oxybenzindole" Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol. 4, No. 9, Sep 70, pp 7-12

**Abstract:** The article suggests a method for the synthesis of derivatives of 2-benzyl-3-carbomethoxy-5-oxyindole and 2-benzyl-3-carbomethoxy-5-oxybenzindole, which are intermediates in the synthesis of structural analogs of serotonin. The derivatives are obtained by condensation of p-benzoquinone or 1,4-naphthoquinone with the methyl ester of N-substituted or unsubstituted  $\beta$ -amino- $\gamma$ -phenylcrotonic acid. Methylation of the derivatives with dimethyl sulfate in an alkaline solution converts them to derivatives of 2-benzyl-3-carbomethoxy-5-methoxyindole and 2-benzyl-3-carbomethoxy-5-methoxybenzindole. Hydrolysis of the

USSR

SHVEDOV, V. I., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70,  
pp 7-12  
latter gives corresponding-2-benzyl-3-carboxy-5-methoxyfuranones and 2-benzyl-3-  
carboxy-5-methoxybenzimidoles. IR and UV spectra were taken of the resultant  
compounds.

2/a

- 34 -

USSR

K UDC 615.31:547.759.327.012.1:

542.9

SHVEDOV, V. I., KURILO, G. N., GRINEV, A. W., All-Union Scientific  
Research Chemico Pharmaceutical Institute imeni Sergo Ordzhonikidze,  
Moscow, Ministry of Health USSR

"Synthesis of 2-Arylindole Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp  
11-15

Abstract: Use was made of the intramolecular cyclization of 2-arylindolyl-3-acetic acids to synthesize 1,2-benzcarbazole derivatives. Introduction of an aryl chromophore into the indole heterocycle increases the absorption intensity and moves the absorption bands toward the long-wave spectral region. The type of substituent in the aryl chromophore has no effect on the position of the absorption maxima. Only two of the eighteen derivatives exhibited antiviral activity in vitro against A type PR-8 strain.

1/1

USSR

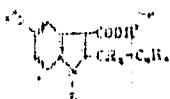
UDC: 547.757.07

SHVIBDOV, V. N., KURILLO, G. N., GRINEV, A. N., All-Union Scientific Research  
Chemico Pharmaceutical Institute imeni Serge Ordzhonikidze, Moscow, Minis-  
try of Health USSR

"A Method of Producing Indole Derivatives"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztay, Tovarnyye Znaki,  
No 7, 4 Feb 70, p 29, patent No 262906, filed 12 Feb 69

Translation: This Author's Certificate introduces a method of producing  
indole derivatives of the formula



where R is H, Alk, Ar; R' is Alk, H; R'' is H, Alk. p-Bromobenzonitrile is  
interacted with -phenyl-<sup>a</sup>minocrotonic acid ester or its derivative in  
an inert solvent such as dichloroethane, and the resultant product is  
isolated by conventional methods or methylated by dimethyl sulfate.

1/1

1/2 010

TITLE--INDOLE DERIVATIVES -U-

UNCLASSIFIED

PROCESSING DATE--13NOV70

AUTHOR--(C3)--SHVEDOV, V.I., KURILO, G.N., GRINEV, A.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,906

REFERENCE--OTKRYTIYA, OZOBRET., PHOM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(7)

DATE PUBLISHED--04FEB70

K

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE,  
INDOLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1777

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132043

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 010  
CIRC ACCESSION NO--AA0132043  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INDOLE DERIVS. (L, R EQUALS H,  
ALKYL, ARYL; R PRIME EQUALS ALKYL, H; R PRIME2 EQUALS H; ALKYL) WERE  
OBTAINED BY TREATING P BENZOQUINONE WITH GAMMA PHENYL BETA AMINO  
CROTONIC ACID ESTER OR A DERIV. IN AN INERT SOLVENT, SUCH AS  
DICHLOROETHANE. THE RESULTING PRODUCT WAS SEPD. OR METHYLATED BY ME  
SUB2 SO SUB4. FACILITY: ORDZHONIKIDZE, S+I ALL UNION SCIENTIFIC  
RESEARCH CHEMICAL PHARMACEUTICAL INSTITUTE.

UNCLASSIFIED

1/3 010

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--SYNTHESIS OF 2,ARYLINDOLE DERIVATIVES -U-

AUTHOR--(02)-SHYEDOV, V.I., KURILO, G.N.

COUNTRY OF INFO--USSR

SOURCE--Khim. Farm. Zh. 1970, 4(3), 11-15

DATE PUBLISHED-----70

K

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INDOLE DERIVATIVE, ARYL RADICAL, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0292

STEP NO--UR/0450/70/004/003/0011/0015

CIRC ACCESSION NO--AP0119284

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16UCT70

2/3 010  
CIRC ACCESSION NO--AP0119284  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. I AND II WERE PREPD. 3PRIME,  
4PRIME, DIMETHOXYACETOPHENONE PHENYLHYDRAZONE (40.5 G) AND 66 G  
100PERCENT H SUB3 PO SUB4 GAVE 90PERCENT II (R PRIME1 EQUALS R PRIME2  
EQUALS H), M. 190-1DEGREES (MEOH ME SUB2 CO). METHYLATION OF 2  
PHENYLINDOLE (III) GAVE 99.5PERCENT I (R PRIME1 EQUALS ME, R PRIME2  
EQUALS H) (IV), M. 99-100DEGREES (MEOH). REACTION OF III AND IV WITH ME  
EQUALS H) (V), M. 99-100DEGREES (MEOH). REACTION OF III AND IV WITH ME  
SUB2 NH AND H SUB2 CO GAVE, RESP., 69PERCENT I (R PRIME1 EQUALS H, R  
SUB2 NH AND H SUB2 CO) GAVE, RESP., 69PERCENT I (R PRIME1 EQUALS H, R  
PRIME2 EQUALS ME SUB2 NCH SUB2) (VI), M. 129-300DEGREES (MEOH), AND  
83PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS ME SUB2 NCH SUB2) (VII),  
M. 199-200DEGREES. TREATMENT OF V AND VI WITH MEI YIELDED, RESP.,  
99PERCENT V METHIODIDE (VIII), M. 200-1DEGREES (DECUMPN.), AND  
97.5PERCENT VI METHIODIDE (VIII), M. 185-6DEGREES. BOILING VII AND VIII  
WITH KCN IN AQ. DIOXANE YIELDED 92.5PERCENT I (R PRIME1 EQUALS H, R  
PRIME2 EQUALS CH SUB2 CN) (IX), M. 117-18DEGREES (MEOH), AND 95PERCENT I  
(R PRIME1 EQUALS ME, R PRIME2 EQUALS CH SUB2 CN) M. 96-7DEGREES  
(DECUMPN.). METHYLATION OF II (R PRIME1 EQUALS H, R PRIME2 EQUALS CH  
SUB2 CN) YIELDED 97.7PERCENT II (R PRIME1 EQUALS ME, R PRIME2 EQUALS CH  
SUB2 CN), M. 139-40DEGREES (MEOH). DRY HCL WAS PASSED 4 HR THROUGH 1.8  
G IX IN 12 ML ABS. ETOH AND 8 ML ET SUB2 O TO YIELD 91PERCENT I (R  
PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CO SUB2 ET), M. 82-2.5DEGREES  
(ME SUB2 CO). HEATING IX WITH POLYPHOSPHORIC ACID GAVE 76PERCENT I (R  
PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CONH SUB2), M. 198-9DEGREES (ME  
SUB2 CO).

UNCLASSIFIED

USSR

UDC 612.013-0647.015.3

GAYEVSKAYA, M. S., NOSOVA, YE. A., BELITSKAYA, R. A., and KURKINA, L. M.,

"Metabolism in Fat Tissues During Prolonged Artificial Hypobiosis"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1971, pp  
53-55

**Translation:** Prolongation of artificial hypobiosis in rats from 24 to 29 hours by combining premedication with external chilling did not result in significant shifts in carbohydrate-phosphorus metabolism in the brain, but intensified conformational changes in brain proteins. The glycogen content of the liver and muscles during 24 to 29 hours of hypobiosis was very low, but hyperglycemia persisted. After 29 hours of hypobiosis, some of the animals exhibited a sharp decrease in the content of nonesterified fatty acids in the blood.

Mortality among nonhibernating homoiothermic animals in a state of artificial hypobiosis (maintenance of lowered vital activity against a background of hypothermia) is known to increase when this state is sustained for more than one day. There are indications that death of animals is related to the development of noncoordination of the metabolic processes in the tissues (14, 22).

1/4

- 78 -

K UDC 619.2.05

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630010-6"

KURKIN, Ya. S.

"Practical Training of Helmsmen and Sonar Operators on a Special Simulator"

Moscow, Rybnoye Khozyaystvo, No 3, 1970, p 35

**Abstract:** Mastering deep sea and trawling fishing systems requires a high degree of efficiency from helmsmen and sonar operators in order to best utilize the ship's technology. A simulator, capable of reproducing operating conditions, is suggested for more efficient training. The first training experience, conducted by "Premorrybpron" in Vladivostok, is described, and the good results obtained on an experimental simulator are mentioned. The design principles and the necessary functions of the simulator-trainer are also included.

UGSR

GAVINSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny No 4, 1971, pp 53-55

Metabolic changes in the tissues of rats kept in a state of hypobiosis for up to one day were investigated by us in earlier studies (3, 5, 9, 11). The purpose of this work was to study metabolic shifts in the brain, liver, muscles, and blood of rats when the state of hypobiosis is lengthened from 24 to 29 hours.

Procedure

Experiments were performed on male rats weighing 150 to 250 g. Artificial hypobiosis was induced by Timofeyev's method (8, 12). After injection of a lytic mixture and tubocurarine, the rats were placed in a ventilated chamber at -10°C where their body temperature dropped to 18 to 20°C. The animals were then transferred to a chamber where the temperature was 16 to 18°C and their body temperature was maintained at 18 to 22°C for 24 to 29 hours.

After the animals were decapitated, the electrophoretic motility of soluble proteins (?) in brain tissues and their ultraviolet absorption spectra (13) were determined. Blood sugar was determined by the Hagedorn-Jensen method; ketone bodies (2) and nonesterified fatty acids (19) were also determined. Other studies were conducted in tissues after they were frozen *in situ* in liquid nitrogen. Total azide groups of proteins (6), total content of ATP and ADP (from readily hydrolyzable phosphorus), content of creatine  
2/4

USSR

GAYEVSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny No 4, 1971, pp 53-55

phosphate (1), inorganic phosphorus (2), glucose (10), glycogen (18), and lactic acid (15) were determined in brain tissue. Glycogen was determined in the liver and muscles (4) and the content of glucose (10) and of lipids (16) was determined in the liver.

Results

Prolongation of the period of hypobiosis from 24 to 29 hours did not produce any significant shifts in carbohydrate-phosphorus metabolism in the brain.

Such shifts as occurred indicated that conformational changes in brain proteins intensified as hypobiosis continued. However, the insignificance of the shifts noted both in carbohydrate-phosphorus metabolism and in brain proteins suggest that they could hardly have been a major factor in the death of animals with the given duration of hypobiosis.

Extension of hypobiosis from 24 to 29 hours did not produce significant shifts in the amount of glucose or glycogen in the liver. There was a slight but significant decrease in the amount of lipids. The glycogen content of the muscles after 29 hours of hypobiosis remained as low as after 24 hours.

3/4

- 79 -

USSR

CAYEVSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny No 4, 1971, pp 53-55

Hyperglycemia persisted after the period of hypobiosis was lengthened. It could have been caused either by glycogenesis or by the very low utilization of glucose by the tissues, which changed after chilling to the preferential utilization of fat, as is the case in supercooling and hibernation (17, 20). Other investigators (22) detected hypoglycemia when they tried to prolong hypobiosis in rats, but we did not. After 29 hours of hypobiosis, the blood content of ketone bodies remained high, a phenomenon consistent with the idea of preferential utilization of fat during hypothermia.

The content of nonesterified fatty acids in blood plasma after 29 hours was little different from that found at the end of 2½ hours of hypobiosis in 7 rats but was sharply lower in 3. These particular rats were in the most serious condition: respiration was infrequent, barely perceptible, and muscle tone was very weak.

Thus, of the indices of metabolism studied, only the insufficiency of nonesterified fatty acids in the blood could be directly related to the death of the rats following the prolongation of hypobiosis for more than one day.

4/4

USSR

UDC: 8.74

1

BAKONIN, V. N., BALUYEV, A. N., BELOVA, K. M., KURKOV, V. L., RABININ, V. N.

"Packet Processing System for the BESM-3M Computer"

V sb. Metody vychisleniy (Methods of Computations--collection of works),  
vyp. 7, Leningrad, Leningrad University, 1971, pp 139-147 (from RZh-Matematika, No 6, Jun '72, Abstract No 6V538)

Translation: The authors consider an operational system for packet processing of a stream of small problems. The system is a development of the "Avtooperator" system worked out at the Computing Center of the Siberian Department of the Academy of Sciences of the USSR. In accordance with this system, a supervisory program is placed in the memory of the BESM-3M to control packet processing, and each problem of the packet is provided with an instruction written in a special language. The supervisory program reads each instruction and prints out the number and time of reception of the problem on the alphanumeric printer. The instruction is then verified, translated into the internal language, and execution begins. It is noted that the supervisory program can model both operations in accordance with the set of codes on the control panel register and on the halt register.

1/2

- 55 -

• USR:

BAKONIN, V. N. et al., Metody vychisleniy, vyp. 7, Leningrad, Leningrad University, 1971, pp 139-147

However, if commutation between external devices, changing of magnetic tapes and so forth is required, the supervisory program signals to the operator and prints out the appropriate request on the alphanumeric printer. When a situation arises in which a client's problem is interrupted, the supervisory program prints out standard information on this interruption, performs the next point of the instruction, and returns control to the program of the problem. After a new interruption, the supervisory program goes on to the next point if there has been no special instruction to interrupt this order. Taking the problem from the computer, the supervisory program records its number, the date and elapsed time in a special register, and prints out the time of day and the reason for the removal. Reasons may be: 1) completion of a job in accordance with instructions; 2) lapse of requested time; 3) a situation has arisen which is not provided for in the instructions. The operation of the computer in the packet processing mode is described. Instructions on the supervisory program are given.

2/2

USSR

UDC: 621.374.32

BELOV, A. F., DOTSEMKO, Yu. Yu., and KURKOV, Ye. V.

"Binary-Decimal Counter"

Avt. sv. SSSR, kl. H 03 k 23/00, No 320061, zayavl. 17.07.70 opubl. 4.01.72 (Author's Certificate, USSR, class H 03 k 23/00, No 320061, claimed 17 July 1970, published 4 January 1972) (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A500P)

Translation: A binary-decimal counter containing four triggers, a shaper, and two transistorized switches in a common emitter circuit is proposed. Two illustrations

1/1